Built Right
Pool Heaters

Pool/Spa Heat Pump

Installation & Operation Manual

Models BR80 XW BR115 XW BR135 XW
BR100 S7 BR115 S7 BR135 S7

BR-40101
Version 2.0

Built Right
Pool Heaters

HEAT PUMP LIMITED FACTORY WARRANTY

This warranty applies to all models installed within the State of Florida after September 1, 2012 (all versions, brands and voltages).

Built Right Pool Heaters, LLC warrants this Swimming Pool Heat Pump, to the original owner and installation site, to be free of material or workmanship defects for a limited term. Specific warranty terms, by model, are listed below.

The warranty shall begin upon the date of purchase, verified by the owner/operator's proof of purchase documents or, in lieu of owner documents, sixty days from date of manufacture. The warranty form must be submitted by the homeowner within thirty days of purchase or warranty is void. The full warranty term includes parts and on-site labor charges, when applicable, to remove, repair or replace defective components, or failure due to workmanship. Replacement parts shall be warranted for ninety days, or the remainder of the original warranty term: whichever is longer. Manufacturer reserves the right to replace defective parts with new or refurbished parts at its sole discretion. Workmanship or labor to remove, repair or replace defective parts shall be warranted for ninety days or the remainder of the original warranty term: whichever is longer. This warranty does not include transportation charges for equipment or component parts to or from the factory. The owner/operator shall be responsible for any trip or travel charge imposed by the warranty center or servicing agent. As of September 1, 2012, the trip charge for the State of Florida is $50 (fifty) US dollars.

Claims for warranty reimbursement must have prior authorization by Built Right, and be performed by a Factory Authorized Service Agent. This warranty is void if the product is repaired or altered in any way by any persons or agencies other than those authorized by Built Right, and is in lieu of all other warranties, expressed or implied, written or oral.

The warranty is applicable only if the heat pump has been installed by a licensed professional and operated and maintained expressly and completely in accordance with the purchased model Owner/Installation Manual. These documents are furnished with each heat pump, and additional copies are available by contacting the Built Right office. The liability of Built Right shall not exceed the repair or replacement of defective parts under the referenced limited warranty term, and shall not include consumables (including, but not limited to refrigerant) or transportation to or from the factory. Built Right shall not be liable for any damages of any sort whatsoever, including incidental and consequential damages. This warranty does not include damage due to freezing conditions, negligence or abuse, installations in corrosive environments or atmospheres, nor act of God. There are no implied warranties of merchantability of fitness for a particular purpose that apply to this product.

Model	On Site Labor	Parts
BR80 XW	(5)Five Years	(5)Five Years
BR115 XW	(5)Five Years	(5)Five Years
BR135 XW	(5)Five Years	(5)Five Years
BR100 S7	(2)Two Years	(7)Seven Years
BR115 S7	(2)Two Years	(7)Seven Years
BR135 S7	(2)Two Years	(7)Seven Years

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Please Read Carefully

For your records, please complete the information requested below.

Should warranty service be required, the following information will be requested to initiate service.

Model Number:_____

Serial Number:_____

Purchase Date:_____

Dealer Name:_____

Dealer Address:_____

_____

Dealer Phone#:_____

Keep your sales slip and this booklet together in a safe place for future reference.

Also, please be sure to complete and mail in the warranty registration form, provided separately from this booklet.

For service, please contact us at
(941) 505-1600

INTRODUCTION

Thank you for your purchase of a Built Right pool and spa heat pump, proudly made in Punta Gorda, Florida. To ensure a long worry-free life, your heat pump has been manufactured with the highest quality parts available today. A pool heat pump is a cost effective method of heating your pool or spa. Your Built Right heat pump will provide you with years of pool enjoyment. Your new heat pump takes heat from the surrounding air and transfers it into the water. The warmer the air and the more humid the air, the more heat is available for heating your pool. The ideal or rated condition for the heat pump is 80°F air temperature, 80% relative humidity, and 80°F water temperature. This is true with all air source pool heat pumps. Under ideal conditions, a properly sized heat pump should raise your pool temperature 1° F. per hour. As air temperature and humidity decrease, performance will also decrease.

The most efficient time to heat your pool is during daylight hours when outside temperatures are the greatest. Adjustments to your pool pump runtime may be necessary to maintain desired temperature. Like your home air conditioner, it is recommended to set a desired temperature and leave it. A heat pump is best utilized for maintaining a set water temperature. It's not intended to provide fast heating. When not in use for long periods of time, it is acceptable to shut off your heat pump. When you have a desire to heat your pool, plan accordingly, because it may take the heat pump days to heat your pool back to your desired temperature. The time it takes to heat your pool back up, will depend on your pool temperature and outdoor conditions.

Your heat pump will operate when temperatures drop at night, but BTU output will also decrease. When the outdoor temperature drops below 45° F, it is not advisable to operate the pool heat pump. Below 45° F, there is insufficient heat in the air to adequately warm the pool. As with all pool heating methods, you are advised to utilize a pool cover at night and when the pool is not in use. A pool cover is recommended if the night temperature is 15°F (8°C) less than the desired pool temperature. The cover will help reduce heat loss by limiting evaporation, greatly reducing the overall pool heating costs. The proper use of a cover can reduce operating cost by as much as 50% under certain conditions.

Proper installation and use of your heat pump will result in increased performance and reduced heating costs. Your pool heat pump is designed for lower maintenance at a lower cost. But if you want your pool heated efficiently, you must follow the advice we supply in this manual.

INSTALLATION

Location Recommendations

- Make sure the heat pump is not located where large amounts of water may enter the heater. This includes *roof run-off* and *sprinklers*.
  - **Re-direct any suspect sprinkler heads away from the heater**. Use a deflector if necessary. (Corrosive sprinkler water damage will void the warranty!)
  - In cases where roof run-off is unavoidable, use of a down spout and/or gutters will protect the heater.
- Make sure that the digital control does not face directly towards the sun. Damage will not occur, but visibility in direct sunlight may be difficult.

Clearances

The Built Right pool heat pump is designed for outdoor installation only. Adequate air circulation is necessary for proper heat pump operation. Totally enclosed areas are not recommended. The heat pump should not be installed under a walkway or a porch.

- At least 4 feet clearance should be allowed above the unit for unrestricted air discharge.
- All sides of the heat pump require a minimum of 6 inches clearance from all walls or other air flow restrictions.
- At least 24 inch access must be available for control panel.

These are manufacturer's tested minimum values given. Where local and national codes apply, and values are different from those specified, use the greater value to ensure safe and proper installation.

Equipment Pad

Install the heat pump on a flat, slightly pitched surface, preferably a concrete or fabricated slab (pad). This allows proper drainage of condensation and rain water from the base of the unit. If possible, the pad should be placed at the same level or slightly higher than the filter system equipment pad. Slightly pitch the pad so that condensate run-off is directed away from the equipment pad. The base should be completely isolated from the building foundation wall to prevent the possibility of sound or vibration transmission into the building. The heater should be located as close as practical to the existing pool pump and filter to minimize water piping length.

Condensation will occur from the evaporator coil while the unit is running and drain at a steady rate, usually 3 to 5 gallons per hour, depending upon ambient air temperature and humidity. The more humid the ambient conditions, the more condensation will be produced. The bottom of the unit acts as a tray to catch rainwater and condensation.

Tie Down Straps

The unit can be strapped down using the Built Right strap kit*. Attach a strap to each side and anchor to the deck. The Built Right strap kit may be used if local codes require securing the unit to the slab. **The Built Right strap kit is available upon request.*

Water Piping

For your convenience the heater's inlet and outlet are labeled.

2" PVC Unions are provided with the heater.

The piping sequence is as follows:

Pool Circulation Pump → Filter → Heater → Chlorinator → Pool

To minimize harm to the pool equipment, any inline chlorination device must be located as the last item returning to the pool. Use only rigid PVC piping and all joints should be cleaned then secured with PVC glue. Make sure that the direction of the water flow through the heater is correct as indicated by the labels on the unit. When the piping installation is complete, operate the pool pump and check the system for leaks.

When the pool heater is installed below the pool water level, isolation valves must be installed. The pool heater should not be installed more than 6 feet below the pool water surface, or no more than 15 feet above the pool level. Be advised that when pool equipment is located below the pool surface a leak can result in large-scale water loss or flooding. Built Right Pool Heaters, LLC cannot be responsible for such water loss or flooding or the damage caused by either occurrence.

The recommended flow rate is 45 gpm through the heater.

Flow Rate	BR80 XW	BR100 S7	BR115 S7	BR115 XW	BR135 S7 & BR135 XW
MIN	20 gpm	20 gpm	20 gpm	20 gpm	30 gpm
MAX	70 gpm	70 gpm	70 gpm	70 gpm	70 gpm

IMPORTANT! A plumbing bypass is required for installations exceeding 70 gpm.

For questions on multiple heater installations, please contact our engineering department. Multiple unit installations should always be in parallel circuits and no closer than 12 inches apart.

ELECTRICAL HOOK UP

The wiring of your heater should be performed by a qualified electrician in accordance with local code requirements.

CAUTION! The main power disconnect must be off before opening the access panel.

IMPORTANT! The electrical conduit **must** be run up through the base of the unit and connected at the control box with a conduit connector.

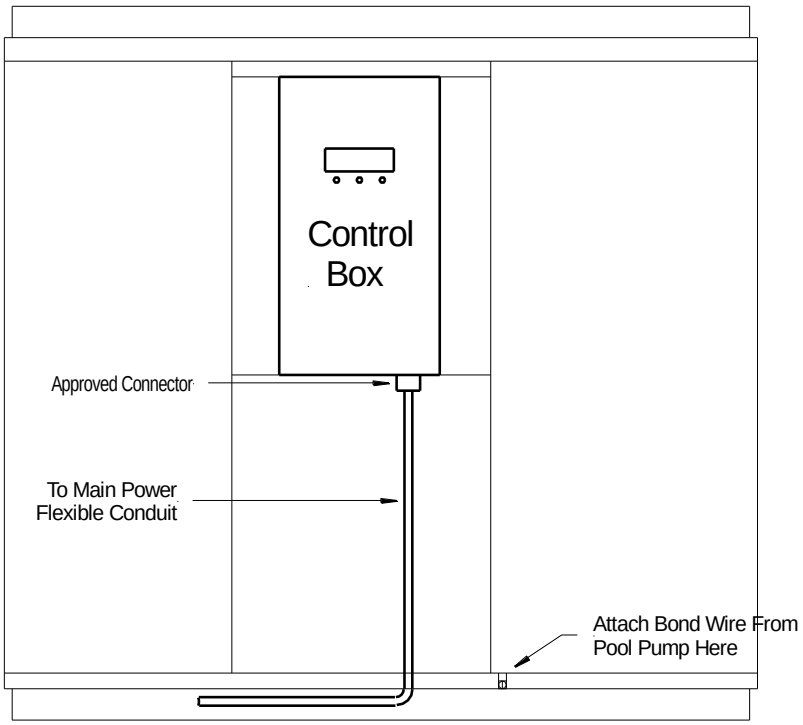
Check the heat pump data label for required breaker size.
Copper wire and a properly sized breaker must be used.

WARNING! The unit must always be powered off before opening the access panel.

BONDING

The National Electrical Code and most other codes require that all metallic components of a pool structure, including reinforcing steel, metal fittings, and above ground equipment be bonded together with a solid copper conductor not smaller than 8 AWG. The heat pump, along with pumps and other pool equipment must be connected to this bonding grid. To ensure this requirement is met, a bonding lug is provided on the front bottom right below the control access panel (see drawing below). ALL metal and electrical components of the pool system must be bonded together. On many older pools, the bonding wire may not exist. In this case, a 6 to 8 ft. copper rod must be driven into the ground near the pool equipment and all electrical and metal components must be bonded to the rod.

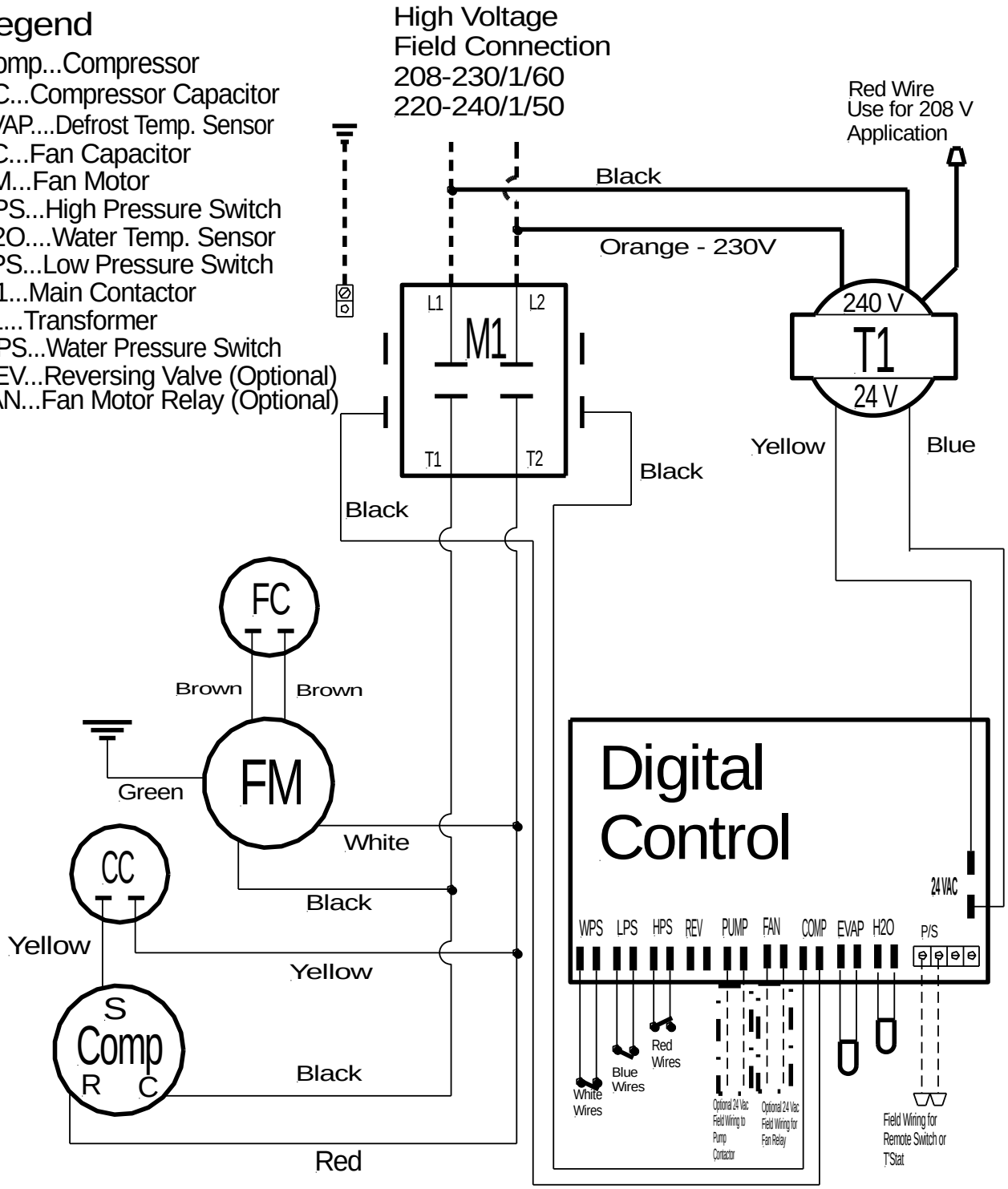
Warranty will be void if system is not properly bonded!



Wiring Diagram

Legend

Comp...Compressor
CC...Compressor Capacitor
EVAP....Defrost Temp. Sensor
FC...Fan Capacitor
FM...Fan Motor
HPS...High Pressure Switch
H2O....Water Temp. Sensor
LPS...Low Pressure Switch
M1...Main Contactor
T1...Transformer
WPS...Water Pressure Switch
REV...Reversing Valve (Optional)
FAN...Fan Motor Relay (Optional)



Built Right Pool Heater

HEAT PUMP OPERATION / DIGITAL CONTROL OPERATION

HEAT PUMP IS HEATING WHEN LIT (COMPRESSOR AND FAN ARE BOTH ON)

CAUTION! When the control is in the "OFF" mode, there is still high voltage to the unit. If you want to turn the unit off for long periods of time, shut the main power off to the unit at the main or service disconnect.

To turn the heater off:

- Press set button until "Off" appears
- Press up arrow until "Yes" appears
- Heater is now OFF.
- Pool & Spa lights will not be illuminated beside the display indicating heater is off.

To turn heater on:

- Press the set button until the word "Off" appears.
- Press down button until "No" appears. Heater is now on.
- Pool & Spa lights will illuminate beside display indicating heater is on.
- Use the up or down arrows to set desired temperature.

Pool/Spa Modes

The control is equipped with two independent thermostats, one for pool temperature and one for spa temperature. This is to allow the user to preset a temperature of their choice and switch between the two settings.

To change between pool and spa modes,

- Press the SET button until the control reads P_S
- Press either arrow key to switch from POL to SPA
- Once the heating mode has been selected, it will be displayed for five seconds and then return to the actual pool water temperature. The lights on the right side of the display indicate the selected mode.

ATTENTION! There is a 3 minute time delay upon initiation of a heating cycle. This is to ensure that the critical components do not fail due to short cycling of the heater.

Displaying the Temperature in °F or °C

- Heater comes pre-set in **°F** mode. If desired in **°C** mode, please call factory for instructions

Keypad Lockout Feature

- **Locking**

To lock the keypad press the SELECT button for 5 seconds and the display will show spacing for a two digit code "_ _" at the right hand side. Press Up and Down buttons to enter the code starting from 00 to 99. Enter the code according to the pre-set. The control is shipped with pre-set code of 20, and then press SELECT button. Each time a button is pressed the control will show "LOC" for 3 seconds and then show water temperature

- **Unlocking**

To unlock the keypad press the SELECT button for 5 seconds and the display will show spacing for a two digit code "_ _" at the right hand side. Enter the code and press the SELECT button. If the correct code is entered then the control switches to show the water temperature. If the incorrect code is entered then the control will flash "LOC" for 3 seconds and switch back to "_ _". If nothing is entered for the next 5 seconds then the control will switch to show water temperature and remain locked.

- **Setting the Code**

With the power to the heater is off, press and hold the SELECT button while applying power. The control will then show the spacing for two digits "_ _". Enter the desired code and press SELECT to save it.

Changing the Set Point Temperature

To change the set point temperature, press the SET button until either POL or SPA is displayed. The programmed temperature will be displayed. Press either the UP or DOWN arrows to change the set point temperature. After adjusting to the desired temperature setting, the display will revert to the actual pool water temperature after five seconds. The default factory setting is "OFF".

Heater Operating Time

It is the owner's responsibility to adequately set the pool pump run time to heat the pool. On colder days, the pool pump run time will need to be extended. The heater requires longer run time in colder weather. The heater is capable of running 24 hours per day if necessary. When you first run your heater, it may need to run continuously for 24 to 48 hours to get the pool up to the desired temperature. On warmer days the heater will not require as long of a run time because there will be less heat loss from the pool.

Initial Startup

Before starting the heater for the first time, it is important to verify that the dedicated circuit breaker and/or the service disconnect are in the "ON" position. Also make sure that the water is circulating freely through the heater and that the pump is activated.

You will then need to set the water temperature to your desired set point. The heater will start after a three minute time delay if the desired set point is higher than the actual pool water temperature.

Defrost Cycle

The heater is designed to enter the defrost cycle at ambient air temperatures below 48° Fahrenheit. During this cycle, the unit may shut down and the control will display "FS" until the ambient air temperature rises above frosting conditions.

Condensation and Drainage

Normal heat pump operation will result in water draining from the bottom of the heater. This is due to the evaporator coil condensing water from the humid air. Condensate water will drain out through the drain holes located in the base pan. Your heater typically produces 3 to 5 gallons of water per hour. When the heater is shut off for a period of time, the water created from condensation will evaporate.

Using an External Controller

- Push the remote wires from the external controller through the rubber plug on the bottom left side of the control box.
- Connect the two remote wires to the two wires from the heater control with the grey wire nuts.
- For POOL/SPA Remote – Adjust both pool and spa temperature's to your desired setting.
- For Remote Thermostat – Adjust pool temperature down to "OFF" and turn spa temperature up to 104° F.
- For 3 wire remote controls, use 2 wires connected to COM & HIGH at the external controller.

GENERAL MAINTENANCE

CAUTION! Make sure all power is disconnected to the heater prior to washing.

Cleaning

Your heater requires only minimal maintenance,

- Make sure the heater has good airflow through the evaporator. To ensure good airflow, remove any leaves, paper or other debris. Also, be sure to keep all shrubs trimmed back from the heater for allowance of sufficient airflow.
- **Make sure the drain holes in the base are free of debris to ensure proper drainage of condensate water.**

Cleaning of the evaporator coil is only as needed. If the heater's location is near an ocean or gulf, regularly inspect the coil for salt or sand build up. If build up is excessive, simply rinse the evaporator coil with fresh water. Use of a garden hose with low water pressure will work best. Use extra care, so that you don't bend the coil fins.

The heater's housing is made from a corrosion-free, UV resistant polymer. It is designed to last for many years. Any dust or debris can be wiped off with a cloth or sprayed off with fresh water.

CAUTION! DO NOT USE ALCOHOL-BASED CLEANERS!
They could damage the polymer housing.

Winterizing

In areas where freezing is prevalent, it is necessary to completely drain any standing water from the heater and disconnect it from the pool piping. Draining the water from the heater prevents the internal piping from cracking when exposed to freezing conditions. Cracked piping due to freezing is not covered under the warranty.

In areas where freezing conditions are non-existent, winterizing is not required.

TROUBLESHOOTING

To verify that your heater is heating your pool, place your hand above the unit. Cool air will blow out of the top of the heater, this occurs when the heating indicator is on. The water returning to the pool will be between 3° to 5° warmer* than the overall pool water temperature. There will also be water draining out of the base of the unit after 10 minutes of run time. *depending on model, ambient conditions, and water flow rate.

If you believe your heater is not functioning properly, see the troubleshooting guide below.
If you are unable to resolve the issue, call our warranty service department at (941)505-1600.

CONDITION	**POSSIBLE CAUSE**	**POSSIBLE SOLUTION**
Control Displays "HP, HP3, or HP6"	Water flow restriction, valve is turned restricting flow.	Clean pump and filter. Adjust water valves. If problem persists, call factory for service.
Control Display flashing "dSd"	Defrost sensor malfunction or not connected.	Call factory for service.
Control Display flashing "PSd"	Water sensor malfunction or not connected.	Call factory for service.
Control Display flashing "FLO"	Pool pump is not on, water flow restriction, or incorrect valve position.	Turn pool pump on. Ensure that skimmer basket, pump strainer basket and pool filter are all clean. Ensure valves are set properly.
Control Display is flashing "FS" Or "FS1, FS2, FS3, FS4"	Air temperature is too cold for heater operation.	**Wait until air temperature warms up to at least 50°F.** Every 15 minutes heater will cycle on for 2 minutes and determine if the temperature is warm enough.
Control Displays "FS5"	Ait temperature too cold after 5 "FS" signals.	When air temp raises above **50°F** press any key on the control. Built in one hour standby mode if nothing is pressed. If still too cold, 15 min FS cycles will resume.
Control Display Flashing "LP" or "LP3"	Low refrigerant, or faulty low pressure sensor.	Call factory for service.
Pool is heating slowly or not getting up to temperature.	Low or restricted water flow through the heater. It is cold outside. Pump timer is not set for a long enough run time. Pool is not being covered. High wind speed over pool. Pool area shaded.	Clean or replace filter. Inspect and clean pool pump. Adjust water valves. Use a pool cover. Construct a wind break around pool. Set pool pump timer longer. Call factory for service.
Water is running out of the bottom of the heater.	The heater produces up to 3 gallons per hour of water condensing from the evaporator coil. Internal water leak.	Shut the heater off for several hours and leave the pool pump running. If the water is still running out, call factory for service.

SERVICE INFORMATION

All service must be handled by an Authorized Service Center. Warranty may be void if a non-authorized service representative does service. Do not return the heater to your dealer, as they do not provide service.

Before calling for assistance or service, please check the Troubleshooting section of this manual. This may save you the cost of a service call. If you still need help, follow the instructions below.

Service can be obtained by calling: **(941) 505-1600**

When asking for help or service please provide a detailed description of the problem, your heater's complete model number and serial number, the purchase date and dealer purchased from. This information will help us respond properly to your request.

Keep a copy of your sales receipt showing the date of purchase.
A valid proof of purchase will assure you of in-warranty service.

Notes:

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